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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,117	09/28/2004	Masaaki Takegami	4633-0126PUS1	1035
2292 7590 10/09/2007 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			EXAMINER NALVEN, EMILY IRIS	
			ART UNIT 3744	PAPER NUMBER
			NOTIFICATION DATE 10/09/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

## Office Action Summary

Application No.

10/509,117

Applicant(s)

TAKEGAMI ET AL.

Examiner

Emily I. Nalven

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/22/07</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

Receipt of amendment filed on July 19, 2007 is acknowledged.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

**Claims 1-5** are rejected under 35 U.S.C. 102(a) as being anticipated by Tanimoto et al. (US Patent No. 6,698,217 B2).

**In regard to claim 1**, Tanimoto et al. teach a refrigerating apparatus (1) in which a refrigerant circuit which performs a vapor compression refrigerating cycle (col 8 lines 25-29) is provided with an oil return passageway (31) through which refrigerating machine oil separated on the discharge side of the compressors (2A) is injected into the suction side of said compressors (2B, 2C) (see Fig. 1 and col 10 lines 64-657 and col 11 line 1) comprising a liquid injection passageway (10, 27) (see Fig. 1 and col 10 lines 54-55) through which liquid refrigerant is injected into the suction side of said compressors (2A, 2B) (see Fig. 1 and col 9 lines 26-28), wherein said oil return passageway (31) is connected to said liquid injection passageway (27) (see Fig. 1) in which gas refrigerant in said oil return passageway (31) is mixed with said liquid refrigerant prior to injecting into the suction side of said compressors (2A).

**In regard to claim 2**, Tanimoto et al. teach a refrigerating apparatus (1) in which a refrigerant circuit which performs a vapor compression refrigerating cycle (col 8 lines 25-29) is provided with a gas injection passageway (15) through which gas refrigerant is injected into the suction side of the compressors (2A, 2B) (see Fig. 1 and col 9 lines 26-30) comprising a liquid injection passageway (10, 27) (see Fig. 1 and col 10 lines 54-55) through which liquid refrigerant is injected into the suction side of said compressors (2A, 2B), wherein said gas injection passageway (15) is connected to said liquid injection passageway (10, 27) (see Fig. 1) in which gas refrigerant in said oil return passageway (31) is mixed with said liquid refrigerant prior to injecting into the suction side of said compressors (2A).

**In regard to claim 3**, Tanimoto et al. teach the refrigerating apparatus (1) comprising a heat source side unit (4) and utilization side (41, 45, 51) units being connected with one another (see Fig. 1) wherein the degree of superheat of suction refrigerant of said compressors (2A, 2B, 2C) is controlled by adjusting the rate of flow of refrigerant flowing through said liquid injection passageway (10, 27) without operating expansion mechanisms provided in said utilization units (4) (see Fig. 1 and col 10 lines 43-53).

**In regard to claim 4**, Tanimoto et al. teach the refrigerating apparatus (1) wherein said compressors (2B, 2C) are variable displacement compressors (col 8 lines 48-52) wherein said liquid injection passageway (10, 27) is opened

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whenever the operating capacity of said compressors (2B, 2C) exceeds a predetermined value (col 13 lines 48-52).

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanimoto et al. (US Patent No. 6,698,217 B2) in view of Tanimoto et al. (US Patent Pub No. 2004/0112082).

**In regard to claim 5**, Tanimoto et al. teach wherein at least one of said compressors (2B, 2C) is deactivated until the operating capacity of said compressors (2B, 2C) but doesn't explicitly teach until it exceeds a predetermined value (col 1 lines 33-36 and col 1 line 67 and col 2 lines 1-23).

Tanimoto et al. explicitly teach deactivating a compressor if the capacity becomes too low (para 17 and para 18). It would have been obvious to one of ordinary skill in the art at the time of the invention to deactivate the compressor until it exceeds a predetermined value as taught by Tanimoto et al.

(2004/0112082) in the system as taught by Tanimoto et al. (6,698,217) because this improves the efficiency of the system and prevents any wear on the system should a compressor be operating at too low a capacity.

***Response to Arguments***

Applicant's arguments with respect to claims 1 and 2 have been considered but are moot in view of the new ground(s) of rejection.

The applicant contends that Tanimoto et al. do not teach a liquid injection passageway. The examiner takes note that Tanimoto et al. teach the liquid injection passageway as the portion of line 10, near the designation of element 27. As seen in Fig. 1, Tanimoto et al. explicitly teach the liquid injection pipe along line 27 connected with a valve 7c thereby meeting the limitations of claims 1 and 2.

Additionally, the applicant contends that element 8 of Figure 1 does not constitute a gas injection passageway and is simply for discharging gas refrigerant from the compressor. However, as the gas is under high pressure in pipe 8 and is therefore injected through the pipe and then this high pressure gas is put through valve 3A thus meeting the metes and bounds of the claim as a gas injection passageway. Additionally, the examiner agrees that pipe 8 is on the discharge side of the compressor and not the suction side as claimed. However, pipes(15) is connected to the suction side of the compressor and are passageways for gas that is injected into the respective compressors, thus the element now referred to as the gas injection pipe is 15 and not 8.

Additionally, the applicant contends that Kitamoto does not teach a liquid injection passageway connected to the oil return passageway. The examiner Applicant's arguments, see page 7 of Remarks, filed July 19, 2007, with respect to rejection 35 U.S.C. 102(b) have been fully considered and are persuasive. The rejection of Kitamoto teaching a liquid injection passageway connected to the oil return has been withdrawn.

This action is being made non-final to afford the applicants another opportunity to respond to the claims rejected in the Office Action.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emily Iris Nalven whose telephone number is 571-272-3045. The examiner can normally be reached on Monday - Thursday 8 AM - 5:30 PM and on alternate Fridays 8 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisors, Cheryl J. Tyler can be reached on 571-272-4834 or Frantz Jules can be reached on 571-272-6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Emily Iris Nalven

  
CHERYL TYLER  
SUPERVISORY PATENT EXAMINER